What is claimed is:

1. A sliding means with built-in moving-magnet linear motor, comprising a bed of magnetic material, a table of magnetic material arranged movable lengthwise of the bed in a sliding manner with respect to the bed, a field magnet arranged on a surface of the table, which opposes to the bed, the field magnet having unlike poles alternating in polarity in a moving direction of the table, an armature winding installed on a surface of the bed, which confronts the field magnet of the table, and a means for monitoring a position of the table with respect to the bed, wherein the three armature windings are provided to carry a three-phase current, each to each phase, so that the three-phase current flowing in the armature windings interacts with magnetic flux created by the field magnet to produce an electromagnetic force to drive the table along the bed in a sliding manner with a desired position control.

2. A sliding means constructed as recited in claim 1, wherein the field magnet is made of permanent magnet of rare earth and having five poles for the three armature windings.

3. A sliding means constructed as recited in claim 2, wherein the position monitoring means is an optical

encoder composed of an optical linear scale secured on the table and a sensor element installed in the bed in opposition to the optical linear scale.

4. A sliding means constructed as recited in claim 1, wherein the table fits on the bed in a lengthwise sliding manner by virtue of a linear motion guide unit, which is composed of track rails provided on the bed and a slider mounted on the bed for sliding movement and having thereon the table.

5. A sliding means constructed as recited in claim 4, wherein the field magnet is at most equal in height to the linear motion guide unit while the armature winding is accommodated in a recess formed in the bed between the track rails.

6. A sliding means constructed as recited in claim 1, wherein a moving stroke of the table with respect to the bed is defined in such a range that forward and aft ends of the table remain at most between centers of forward and aft coil sides of the armature windings.

7. A sliding means constructed as recited in claim 1, wherein the field magnet is mounted on forward and aft ends thereof with end plates, each to each end, of magnetic material to keep the magnetic flux created by the field magnet against magnetic leakage.

8. A sliding means constructed as recited in claim

1, wherein the armature windings are installed in juxtaposition along the sliding direction of the table in the recess formed in the bed.

9. A sliding means constructed as recited in claim 1, wherein the armature windings are attached to a coil board that is secured to the bed to close the recess, and the armature windings are each formed in a flat shape and fixed in juxtaposition in the moving direction of the table to a surface of the coil board, which is exposed to the recess.

10. A sliding means constructed as recited in claim 1, wherein the armature winding is composed of a resinous core molded in a form of rectangle, and turns wound around the core.

11. A slider unit constructed as recited in claim 1, wherein the table is provided with an origin mark to define an origin of the table, while the bed is made with a limit sensor to detect the poles at forward and aft ends of the field magnet and a before-the-origin sensor to monitor the origin mark, both the sensors being placed at forward and aft ends of the bed along the moving direction of the table.

12. A sliding means constructed as recited in claim 1, wherein the bed has an end block at any one of the forward and aft ends thereof in the moving

direction of the table, and has a connector block at another of the forward and aft ends, the connector block having an electric power cord to be connected to the armature windings and a sensor line to be connected to the position monitoring means, and elastic stoppers are mounted on the blocks, each to each block, to buffer collision with the table.